

CLAIMS

- 1 1. An optical beam steering system for steering an optical beam, comprising:
 - 2 a) an optics system having a focal plane and an optical axis;
 - 3 b) a plurality of source elements positioned on said focal plane, each capable of providing a
 - 4 point source of radiation to said optics system, said optics system providing a collimated
 - 5 output; and,
 - 6 c) a small angle beam steerer for receiving said collimated output and redirecting said
 - 7 collimated output through a small angular deviation, the redirected output thus being
 - 8 transmitted in a desired direction without a need for mechanical gimbals, said desired
 - 9 direction capable of covering a large angular range with respect to said optical axis.
- 1 2. The system of Claim 1, wherein said small angle beam steerer is capable of steering in a range
 - 2 of about 0 to 5 degrees.
- 1 3. The system of Claim 1, wherein said small angle beam steerer comprises an optical phased
 - 2 array.
- 1 4. The system of Claim 1, wherein said optics system comprises a wide angle lens.
- 1 5. The system of Claim 1, wherein each source element comprises an end of a single mode optical
 - 2 fiber.
- 1 6. The system of Claim 1, wherein said plurality of source elements comprise a plurality of laser
 - 2 diodes.
- 1 7. The system of Claim 1, wherein said plurality of source elements comprises a plurality of vertical
 - 2 cavity surface emitting lasers (VCSEL).
- 1 8. The system of Claim 1, wherein said plurality of source elements comprises a two-dimensional
 - 2 optical fiber array.
- 1 9. The system of Claim 1, wherein said plurality of source elements comprise an optical switching
 - 2 network.

1 10. An optical beam steering system for steering an optical beam, comprising:
 2 a) a small angle beam steerer for receiving a collimated laser beam and redirecting said
 3 collimated laser beam through a small angular deviation;
 4 b) an optics system having a focal plane and an optical axis, said optics system for focusing
 5 said redirected laser beam onto said focal plane; and,
 6 c) a plurality of detector elements positioned on said focal plane, each capable of receiving the
 7 focused laser beam from a desired direction without a need for mechanical gimbals, said
 8 desired direction capable of covering a large angular range with respect to said optical axis.

1 11. The system of Claim 10, wherein said small angle beam steerer is capable of steering in a
 2 range of about 0 to 5 degrees.

1 12. The system of Claim 10, wherein said small angle beam steerer comprises an optical phased
 2 array.

1 13. The system of Claim 10, wherein said optics system comprises a wide angle lens.

1 14. The system of Claim 10, wherein said plurality of detector elements comprise PIN's.

1 15. The system of Claim 10, wherein said plurality of detector elements comprise APD's.

1 16. A method for optical beam steering, comprising the steps of:

- 2 a) providing a point source of radiation to an optics system from a focal plane of said optics
 3 system, said optics system providing a collimated output; and,
 4 b) redirecting said collimated output through a small angular deviation utilizing a small angle
 5 beam steerer, the redirected output thus being transmitted in a desired direction without a
 6 need for mechanical gimbals, said desired direction capable of covering a large angular
 7 range with respect to an optical axis of said optics system.

1 17. The method of Claim 16, wherein said step of redirecting said collimated output comprises small
 2 angle steering in a range of about 0-5 degrees.

1 18. The method of Claim 16, wherein said step of redirecting said collimated output comprises
 2 utilizing an optical phased array.

- 1 19. The method of Claim 16, wherein said step of redirecting said collimated output comprises
- 2 utilizing a wide angle lens.

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